

FIG.1

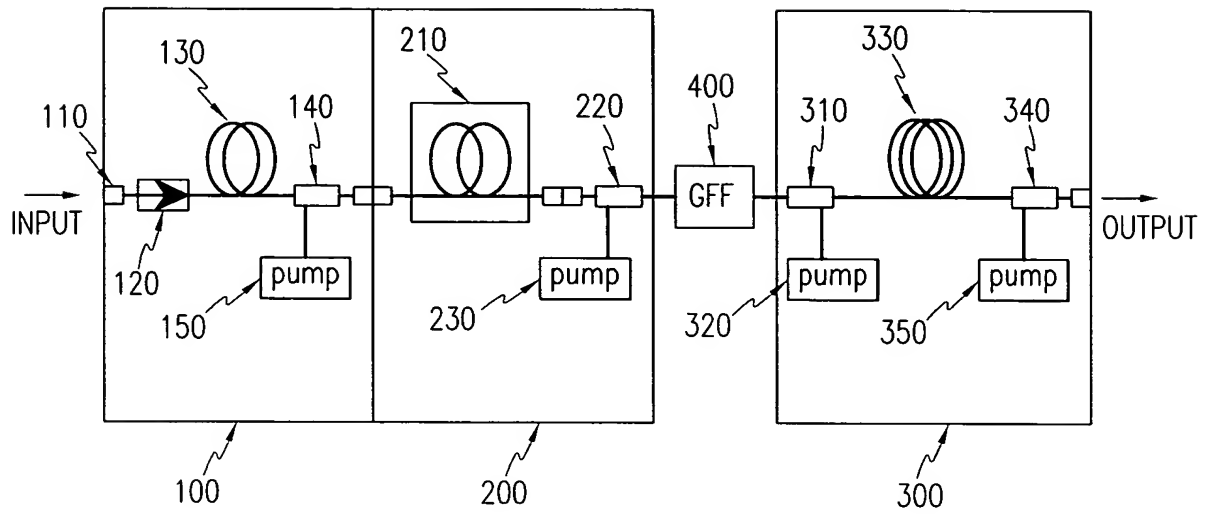


FIG.2

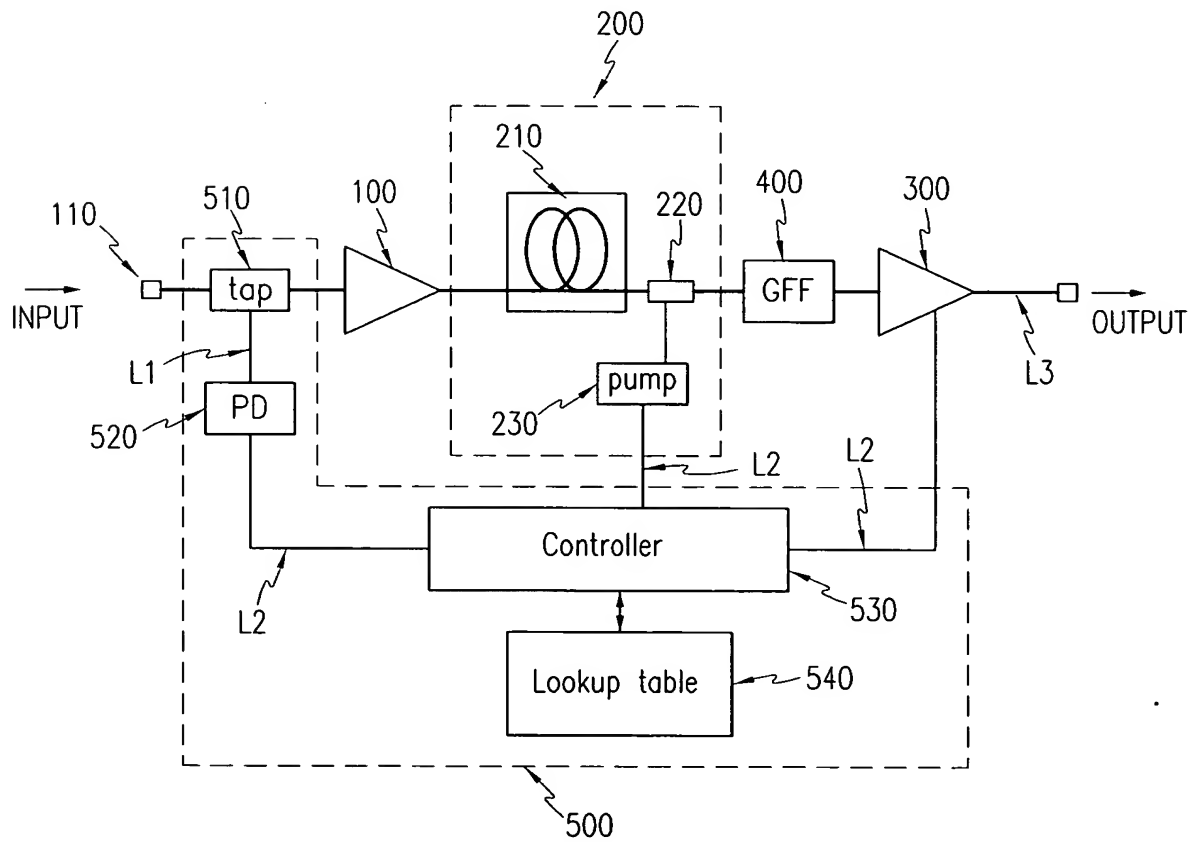


FIG.3

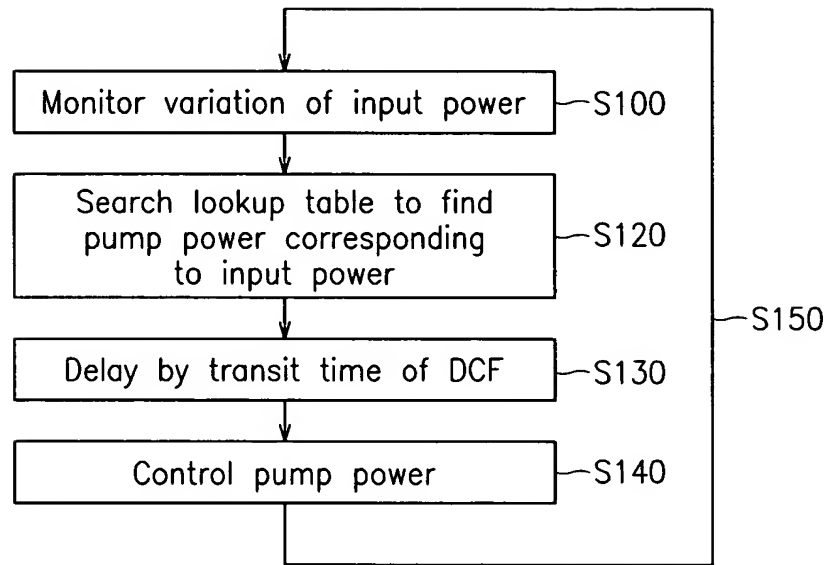


FIG.4

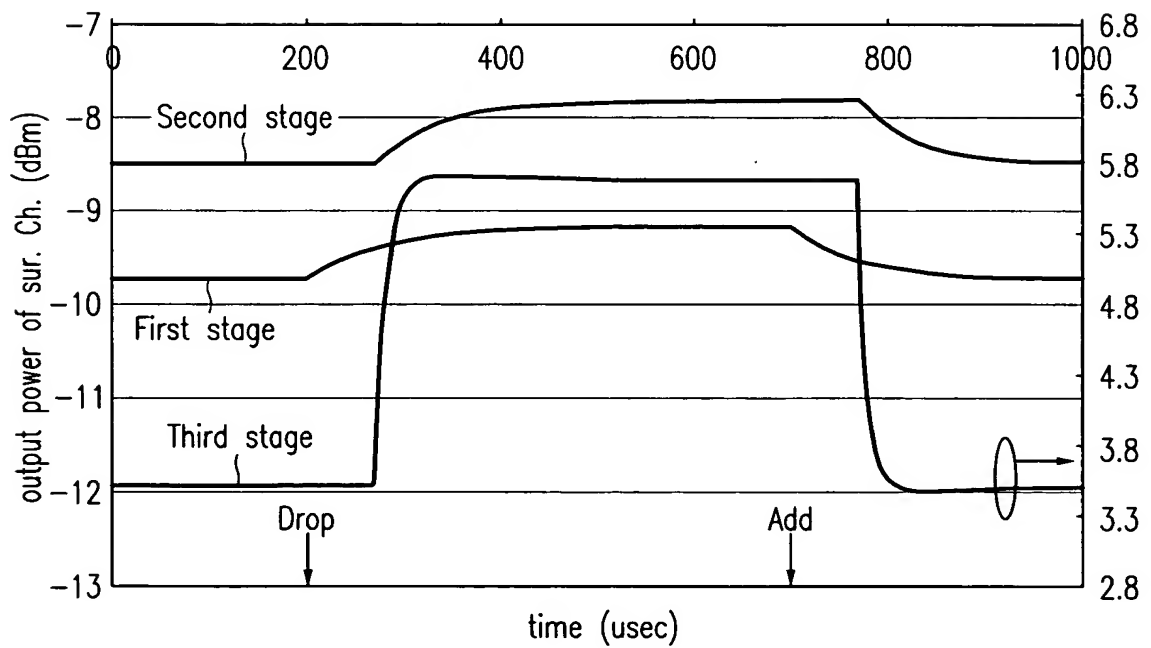


FIG.5

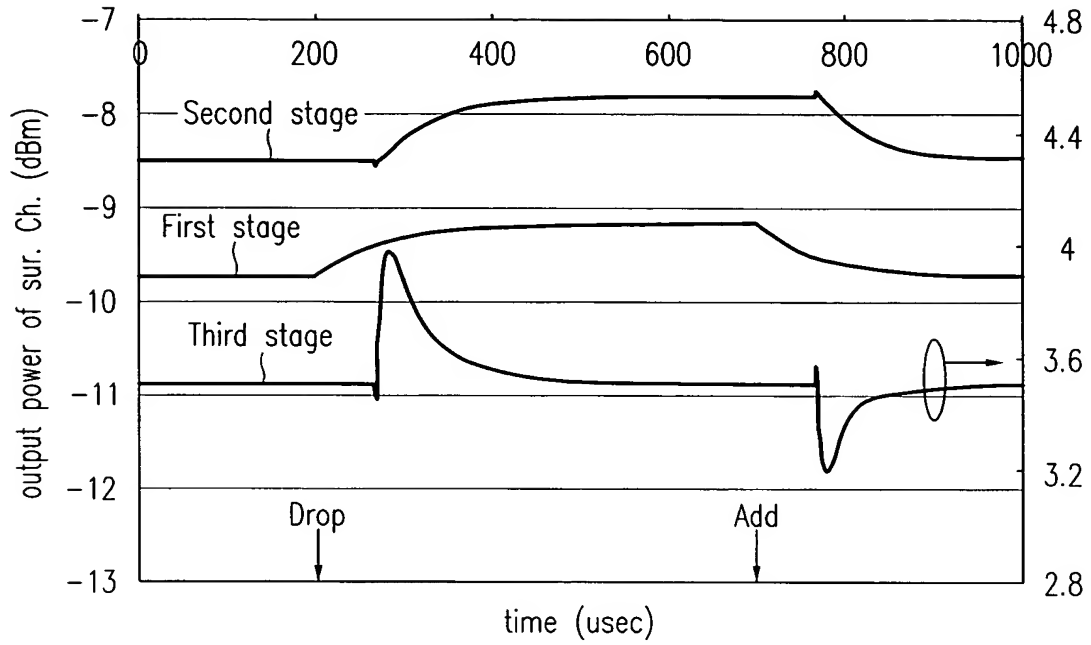
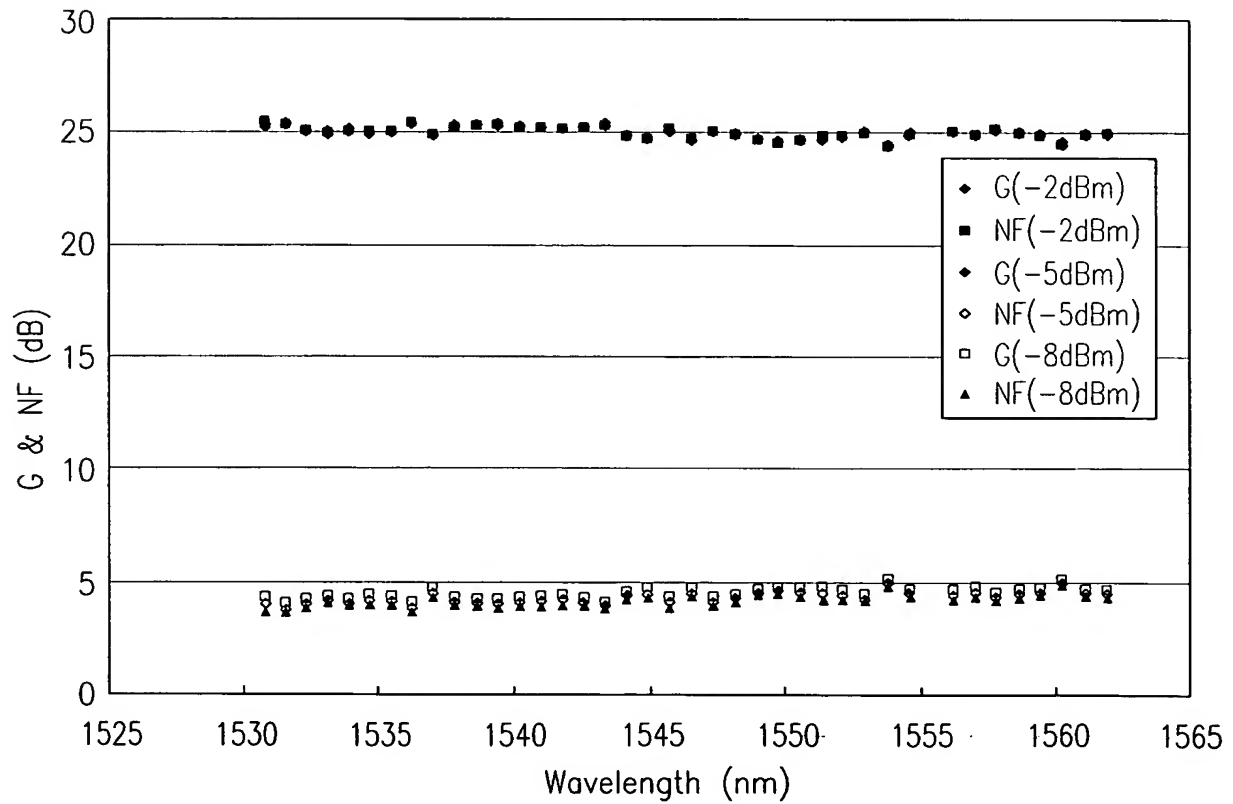


FIG.6



The diagram illustrates a digital control system for a pump. The system components and their interconnections are as follows:

- Input (110):** The system starts with an input signal entering a tap (610).
- Feedback Path:** The signal from the tap (610) passes through a filter (620) and a PD (Proportional-Derivative) controller (630). The output of the PD (630) is fed back into the Controller (640).
- Control Loop:** The Controller (640) sends a control signal to the pump (230). The pump (230) is part of a dashed box (200) that also includes the GFF (Gain Function Filter) (400).
- Output:** The output of the GFF (400) is fed into a final output stage (300), which produces the system output (OUTPUT).
- Control Logic:** The Controller (640) is connected to a Lookup table (650), which provides data to the Controller. The Controller (640) also receives feedback from the output (300) via a feedback line (L2).
- System Boundaries:** A dashed box (600) encloses the tap (610), filter (620), PD (630), and the pump (230). Another dashed box (200) encloses the pump (230) and the GFF (400). A third dashed box (650) encloses the Controller (640) and the Lookup table (650).

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graph TD; S200[Monitor variation of specific input channel power] --> S210[Search lookup table to find pump power corresponding to specific input channel power]; S210 --> S220[Delay by transit time of DCF]; S220 --> S230[Control pump power]; S230 --> S240[ ]; S240 --> S200;
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The flowchart illustrates the control method for pump power, consisting of the following steps:

- S200: Monitor variation of specific input channel power
- S210: Search lookup table to find pump power corresponding to specific input channel power
- S220: Delay by transit time of DCF
- S230: Control pump power

The process then loops back to S200, as indicated by the arrow labeled S240.

FIG.9

